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CLINICAL NOTES ON NERVE DISORDERS IN SURGICAL PRACTICE

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No apology should be needed for putting together notes of unusual cases, especially of nerve disorders. Though some of the following have been already referred to before in various journals, in several of them lapse of time has enabled me to add the sequel, which is so often the more valuable part of such records as are here given.

I shall first cite certain cases of interest in which ophthalmoplegia was a symptom; next a number of examples of so-called "hysterical" phenomena in association with more or less definite surgical disorders; then some spinal cases, including two of recovery after fracture of the spine; and lastly some illustrations of the effects of traumatic lesions of peripheral nerves.

Much interest has attached of late years to cases of ophthalmoplegia, as illustrating the study of those centres which co-ordinate the several forms of binocular movement. Mr Nettleship¹ remarks, "It is believed, as the result chiefly of

¹ *Diseases of the Eye.*

experiments by Hensen and Völckers, that there are separate centres for different parts of the third (and fourth) nerve in the floor of the aqueduct of Sylvius; most anteriorly is the centre for accommodation, next that for the sphincter of the pupil, next for the internal recti (convergence), and further back those for the other ocular muscles. It has also been made out that there is a direct connexion between the nucleus of the sixth nerve on one side, and part of the fibres of the third and fourth of the opposite side, an arrangement which may explain the association of the external rectus of one eye with the internal of the other in looking sideways." I would especially call attention to the ocular symptoms in *Case I.*, in which, with dilated pupils and divergent squint with entire inability to effect convergence, each eye nevertheless worked separately perfectly well, and accommodation was not interfered with so far as could be ascertained by the simple tests described.

The centre for accommodation, which lies most anteriorly in the Sylvian aqueduct, was not disordered, while that for the sphincter of the pupil and for convergence was selected for derangement; the other part of the third nerve escaped, and even the internal recti were not affected so far as separate action was concerned.

Dr. Bristowe¹ has published records which make it seem possible that "nuclear ophthalmoplegia" may be functional in origin; but, whatever view may be taken of the cause of the symptoms, the separation of the functions is clearly evidenced in the ocular disorder described—and if the case be considered to be complicated with suspicions of hysteria it is not the less interesting on that account.

The two cases of ophthalmoplegia that follow, I put together because they both came to me for their eye-troubles, and had alarming symptoms, which did not however confine them to the house or interfere much with occupation; they both entirely recovered, and possibly were helped by iodide of potassium. The cases differed entirely from any ordinary unsymmetrical complete ocular palsy, nor did they resemble the cases in Mr. Hutchinson's classical papers² of 1879 on *Ophthalmoplegia Externa* and *Interna*. There was no association of tabes or optic nerve

¹ *Diseases of the Nervous System.*

² *Lancet*, i., 1879.

atrophy; malignant growth and tubercle seemed also to be out of the question.

*Case I.—Parageusia with ophthalmoplegia: recovery.*¹—A gentleman, aged 47, came to me on December 9, 1890, complaining of double vision. I then found both pupils dilated, and not acting at all to light or in accommodation. My notes are as follow: "There is no squint evident, he has homonymous diplopia, images separated horizontally, but this does not affect near vision, and he can read and write as usual with both eyes. He thinks the diplopia is worse at one time than another, and on looking to the right. He stands fairly with his eyes shut. Knee-reflex is exaggerated in both legs. He covers or shuts the right eye in walking. There is no optic neuritis."

"The vision of each eye separately is not affected. The attack began three days ago. He was in his usual good health when he noticed at table that everything tasted bitter; he thought also that saliva collected a little more on the left side of his mouth than on the right, and he began to see double."

One week later I note a marked divergence of the eyes, apparently more on the left side. "There is now crossed diplopia; each eye separately will follow a finger or object well. There seems no paralysis of any single muscle, but convergence is impossible, and all near work is done with one eye, the left for choice. Both pupils wide. The right pupil is rather smaller than the left. There have been patches of numbness in the skin of the outside of the left thigh and left little finger. At night severe pain in head and scalp, relieved a great deal by hot compresses. The taste-symptom has been a serious distress, even water was too bitter to be touched, and all food and drink distasteful. Hungry and with a clean tongue he was unable to eat his dinner. A glass of champagne was tried and found impossible to be finished. This symptom has now departed after lasting acutely during five days."

Ten days again elapsed before I made a note. "No more severe pain, pupils are equal and smaller, act slightly but definitely to strong reflected light, attempts at convergence can be observed. All other signs are better, and there is no fresh manifestation.

¹ Read before the Ophthalmological Society, May 1891.

The left eye is still preferred for near work and in walking. There is dizziness in using the right eye for distance, but little error in projection."

Again, in ten days: "Pupils act to light, and with effort convergence and single vision is possible."

After a fortnight: "The convergence is nearly re-established; can now read and write with both eyes used together, if tired slight diplopia; difficulty in looking askance to the right without diplopia."

The symptoms finally passed away in a few days from this date, about eight weeks since the onset of the disorder, the parageusia having lasted acutely during five days.

The evidence as to his accommodation being used is that with either eye at nine inches the patient could read J1 using the spectacles to which he was accustomed, namely (with the usual notation)—

Rt. + 1.75 D sph. \bigcirc cyl. + 0.5 D | vertical

Lt. + 2.25 D sph. \bigcirc cyl. + 0.5 D / 40° up and out.

With these glasses at the onset the eyes were used together, until when convergence was not possible one eye was used with the other shaded. A good deal of literary work was done throughout the attack. There was at no time any difficulty in reading and writing.

In the treatment of this case attention was paid to diet and regimen; butcher's meat and alcohol sparingly permitted, all exciting work forbidden. Mid-day sleep obtained. Iodide of potassium beginning with 30 grains daily, soon pushed to 90 grains daily, seemed to be the means of relief and restoration.

The patient had had syphilis twenty-five years before this attack, has had good health himself since, and has three healthy children without any evidence of heredity as regards syphilis.

Some weeks after this record, when all ocular symptoms had passed away, I was sent for on account of a severe pain in the right supra-scapular region made worse by movements; having suffered a good deal at night with it, he had obtained relief by lying on that shoulder. There was nothing objective to be discovered after careful examination, and the patient passed a

large quantity of pale urine while the attack was urgent. He was entirely restored by a seaside holiday.

These alarming symptoms seem to point to a lesion of some of the nuclei of the third nerve in the aqueduct of Sylvius. The recovery after a course of iodide of potassium suggests that a syphilitic gumma may have been the cause of the ocular disorders.

The lesion, if present in such a region, must be very small not to do more damage than just to affect that part of nerve which deals with the internal recti associated in convergence, leaving the lateral and other movements of the eyeball possible, without involving the levatores palpebrarum; and at the same time dilating the pupils, without evidence of affection of the accommodation. With no experience of the curious disturbance of taste which the patient described to me, I should like to know whether it is found in hysteria and functional disorders, as this fact might cast a doubt on the syphilitic origin of the other symptoms. It differed quite from the unilateral hot pain in the tongue found sometimes in Bell's palsy of the facial, due to affection of the chorda tympani. This pain does not, so far as I know, come on in eating and drinking. It was not a hyperæsthesia, but a painful perversion of taste. The patient himself thought his symptoms were due to a cerebral hæmorrhage during coitus.

The next was a curious case in which one eye only was affected, all the external muscles were paralysed except the levator palpebræ, the ciliary muscle and pupillary sphincter not being affected. There had not been any pain or tenderness or anything to suggest inflammation about the orbit. If this was a deep nerve-lesion at all it did not seem likely to be mischief about the nerve-cords in the cavernous sinus—otherwise it would be difficult to conceive the escape of the levator palpebræ and the ciliary muscle. Further back among the nuclei of origin, or further forward where the nerves divide in the orbit, is a more probable seat of the lesion. On the whole it seems that the nuclei were affected rather than nerve-fibres selected so partially as to involve the entire fourth and sixth nerve, with that part only of the third which supplies the internal, superior, and inferior rectus. In connexion with the

paralysis of the sixth, the examination of the associated action of the internal rectus of the other eye did not show any fault, and so far this is against a nuclear lesion.

*Case II.*¹—The patient, aged 52, was a farmer sent by Dr. Cox of Willingham, on February 27, 1891. He was quite clear in his mind, and said his name was Tibbit, and “you spelled it the same backards as forrards.” He was quite able to follow his occupation. He had troublesome diplopia, and could not steer himself in walking with the right eye open; he always therefore kept it tightly closed.

The right eye was nearly stationary in middle position, there was only very slight movement visible. The ocular muscles, including the superior oblique, all impaired; there was no ptosis whatsoever. The movements of the left eye were perfect. In associated movements the right eye seemed rather more free than when acting alone. The pupils were equal, measuring 3 mm., active to light and accommodation. The vision of the right eye was $\frac{2}{50}$, but very slight movement of the head put the board out of view; no improvement obtained with spherical glasses. Vision in the left eye was normal. No signs present of tabes; no optic neuritis.

He told me that a week before he had to sit up all night with his cow, and it was a cold job; the disorder had come on gradually next day. There had been no illness during the twenty years past, until a year ago he had a bad attack of retching, thought to be influenza. He drinks a good deal of beer, no spirits. There was no history of syphilis; of two children, one was aged sixteen in good health, and a son aged twelve years was subject to nocturnal fits, in which he bit his tongue. Iodide of potassium was given, 30 up to 60 grains daily.

When examined a week later, the movements, though very limited in the right, could be easily seen; also the eye examined alone made better movements than when associated with the other eye.

The patient gradually recovered, and in three or four months was entirely well.

¹ Shown at the Cambridge Medical Society on March 6, 1891; *Lancet*, April 11, 1891, p. 83.

Case III.—Paralysis of right sixth and left facial nerves.—A labourer,¹ aged 45, was seen on February 15, 1891, at Addenbrooke's Hospital. He has complete paralysis of the external rectus in the right eye, and facial palsy complete, including the orbicularis on the left side; doubtful as to chorda tympani and tongue.

There is no affection of the left internal rectus when its associated action is tested. There has been considerable hemi-crania.

The symptoms date back about a fortnight as to the face, but diplopia was noticed several weeks previously. He first observed his face to go wrong by having to change his pipe to the other side of his mouth.

There are no signs of tabes dorsalis, and no optic neuritis; no other signs of disease or loss of function, except a symmetrical and considerable contraction of the visual fields (see plates), as tested with McHardy's perimeter; colour sense is good. He smokes tobacco and drinks a good deal of beer. In contrast with the other cases of ophthalmoplegia noticed, this is a complete paralysis of each nerve, and both sixth and facial nerves are often affected in so-called rheumatic disorder. Certainly in the face the orbicularis being so much affected suggests Bell's palsy, and that the occurrence of the two together may be a coincidence and a curiosity.

Against this view is the condition of the visual fields, and the fact that the diplopia was noticed so long before the face disorder.

About three months after these remarks were made, I heard from Mr. Lewis, of Willingham, as follows:—"I have much pleasure in giving you a few particulars relative to L.'s death. About four or five weeks ago he developed well-marked phthisical signs at the apex of the right lung, and had all the usual signs of acute pulmonary phthisis. About a week or ten days before his death, he complained of great pain over the abdomen in the right hypochondriac and epigastric regions. On examination I found the liver enormously enlarged. In a day or two he became jaundiced, and this continued until his death.

"The facial palsy remained the same as when you saw him. He had no head symptoms and was free from pain, except in

¹ Shown to the Cambridge Medical Society; *Lancet*, April 11, 1891.

the abdomen, for some weeks before his death. He was conscious almost to the last."

Unfortunately, no *post-mortem* was obtained, but there cannot be much doubt that either tubercle or new growth caused the death of this patient, and probably also the paralysis above described.

The following case is given in some detail because its symptoms probably indicate an arterio-venous communication in the cavernous sinus after fractured base of skull, followed by meningitis, intra-cranial bruit, proptosis oculi, and ophthalmoplegia of such a character, symmetrical but not synchronous, as to point to thrombus in the cavernous sinus, and so to localise the lesions in a rather unusual way.

So far as this patient has recovered fairly from the effects of ligature of the carotid, success may be said to have followed treatment: but the history perhaps indicates that an earlier operation would have been wiser. For a good account of such cases see Mr. Rivington's paper in Heath's *Dictionary of Surgery*.

Case IV.—Unilateral proptosis with intracranial bruit and ophthalmoplegia; ligature of carotid; recovery.—A lad, aged 13, was admitted into the accident ward of the Hospital on October 6, 1890, suffering from a fractured thigh and with signs of severe concussion of the brain. He was collapsed and quite unconscious, pupils equal with normal reaction; bloody fluid issued from the left ear. During the evening he was very noisy, tossing and shouting out loudly, yet his pulse remained much the same, and his extremities were cold. He vomited some blood.

The following day he was more conscious but very refractory, and difficult to keep in bed. His pulse remained small and irregular. Ten grains of ammonium bromide seemed to be useful. On the 8th he was better, especially improved as to the pallor of his face and the pulse-beats. Double ptosis was noticed, more marked on the left.

Three days later he still remained in a stupid, fretful state, but with no pain. Pulse quicker, ptosis marked, and left pupil enlarged.

On the 16th, very fretful and stupid, no headaches or pains. There is dilatation of both pupils.

On the 28th, improvement in disposition, less ptosis, both pupils dilated. This evening, after a cheerful and even playful day, he was suddenly seized with pain in neck and occiput, and stiff retraction of the neck with head thrown back; the boy, screaming in agony, gave much the appearance of tetanus. The alteration in expression of his face from the ptosis also suggested a tetanic spasm. No other muscles were contracted, and the resemblance to tetanus merely describes his aspect. The boy continued in pain all night, occasionally screaming; he was quiet only for about an hour. Next morning there was œdema of the lids and proptosis of the left eye, but no pulsation in eyeball or orbit. The retraction of the head and other signs as before. The occiput and posterior cervical region were acutely tender to the touch, and even the gentlest movement could not be endured.

This attack seemed to be much relieved by an application of leeches to the temples, followed by quarter-grain doses of calomel every two hours. Gradual improvement took place in the urgent symptoms. The projection of the left eyeball and œdema of the lids, with filling of conjunctival vessels, was more decided on the evening of the 30th; but he was able to lie easily and keep his neck bent forward. He was much quieter, the bowels acted well; and a good deal of sleep was obtained.

On the 31st improvement was maintained, quiet and sleepy, could be roused to intelligence. Still proptosis of left eyeball, double ptosis, and dilatation of both pupils. He could count fingers easily with either eye.

Six days later (November 6) there was a general improvement, and even some in the eye and eyelid signs, until on November 16 a sudden attack of pain in the orbital region and increased proptosis came on, the lad putting his hand to his eye and screaming at intervals.

Chloroform was given and an incision was made through the upper lid into the orbit to relieve tension; an effusion of blood into the cellular tissue with very distinct pulsation was then noted. Auscultation of the forehead discovered a loud bruit, continuous but with reinforcements during the pulse. Pulsation could be felt only for about an hour and a half; the upper eyelid was swollen by ecchymosis. The patient was irritable all day, but there was no more severe pain.

The loud intracranial bruit was arrested by pressure on the left common carotid artery. Four minutes was the longest time attempted successfully. Pressure on the right carotid made no difference. Ophthalmoscopic examination: "In both fundi signs of optic neuritis. There is a blurred disc in the right fundus oculi, and in the left the margins are ill-defined, in portions not distinguished." On March 6, I spoke of him to the Cambridge Medical Society as follows: "Since the last note, a gradual improvement has taken place in all respects. The patient now presents his natural manners, and is perfectly sensible. His pupils are dilated and there is some ptosis, with signs of optic neuritis and vision somewhat impaired. The bruit on auscultation of the head is to be easily heard."

"My explanation of this bruit was that, the base of the skull having been fractured in the region of the cavernous sinus, a communication had been made between the carotid artery and the venous channel. There are many such cases on record, and some have been cured by ligature of the carotid, an operation which I was much tempted to perform in this case, and it may yet be necessary. It does not appear that the boy is annoyed by the noise in his head, and he is doing so well in most respects that I do not consider myself justified in operating."

"The chief reason for urging an operation now is found in the precarious state of the vision. It is contended that ligature gives a better chance for recovery from the optic neuritis, with restoration of vision."

"Unfortunately the optic neuritis has happened, is improving, and cannot easily be shown to be due solely to the communication which is supposed to exist between the internal carotid artery and cavernous sinus. The painful retraction of the head and other signs described were probably due to basic meningitis."

On December 19, after he was shown to the Cambridge Medical Society, a violent attack of pain came on, which, though not serious as before, was accompanied by much more proptosis and œdema of the lids on the left side. His mental condition seemed also worse. The left common carotid artery was accordingly tied on December 21. The effect was the immediate cessation of the intracranial bruit, but alarming symptoms followed which threatened his life. During a month he was

comatose, and could with difficulty be made to swallow fluids; he passed his urine and faeces involuntarily (during three weeks). The right arm and leg were rigidly contracted, and the right side of the face was paralysed completely.

He lay helpless and unconscious, his right eyelid open, the eye covered always with secretion so tenacious, that in spite of care the cornea ulcerated somewhat. The left eyelid drooped, the eye was much less projected. Movements of both eyeballs at one time were entirely absent, but there was now slight improvement in that respect.

Gradually recovery took place, and now the lad is still improving. His mental condition is still very feeble—he often uses wrong words, and has no ideas except in connexion with food. The ptosis and proptosis have almost disappeared. The movements of the eyeballs are very limited; the right eye has always an inward squint. The opacity across the cornea is getting less. The left eye moves slightly in and out, but cannot keep in other than the mid-position. The sight in each eye is very defective. There is no intracranial bruit.

Some facial palsy of the right side, and rigidity of the right upper limb with flexion of the fingers, still remain; the leg is recovering pretty well.

Three months later the boy walked about well, and was hearty and strong. His right arm is still stiff and the hand almost useless. He has fair recovery of vision, the movements of the eyeballs much impaired in both. His mental state is much brighter. The progress of the case has confirmed the diagnosis that a communication between the carotid artery and cavernous sinus was the cause of the bruit and proptosis.

The subsequent ophthalmoplegia externa with ptosis, symmetrical but not simultaneous, was made much more evident by ligature of the carotid, and points to clotting in the cavernous sinus, and interference, by pressure or contraction, with the nerves to the eye-muscles.

The right-sided spastic hemiplegia was due probably to lesion of the corpus striatum or of the cortex, owing to the sudden cutting off of the blood-supply (by ligation of the left common carotid artery) from a bruised and inflamed area of brain tissue.

It would not be difficult for any one practising much among young men to be led to conclude that hysteria was more common in males than in females. Though this may not be the case, yet it often appears that young men, when they have hysteria, have it very badly, and it then plays havoc with an important part of their lives, not rarely leading to the alteration of their entire prospects, or stopping their educational progress for a year or more at a time when an interruption can be ill afforded. The effect of misplaced sympathy, especially when exhibited by a number of friends, is sometimes remarkable, and adds to the difficulty of treating hysterical men. The solitary, introspective student, who has been reading a pamphlet by a designing quack on the consequences of sexual abuse, tells his troubles to no one; but he is a patient who requires sympathy and reassurance from his medical adviser, and is of another type.

Undergraduates afford many examples of ordinary hysterical attacks, and they are of an age with suitable conditions to suffer seriously. One of the worst cases of so-called neuralgic joint that I have ever witnessed was in a young fellow otherwise healthy and sound, but of the "tea-party" type of man. He suffered most severely from pain in his hip-joint, which closely simulated real disease. It was recognised, as most of these cases are, by the exaggeration of the signs and by the absence of heat and fever. I elicited that he was in face of an examination for which he was very ill-prepared, and as he was quite too ill to present himself, I said confidently that on a certain day he would be free from pain and walk about again, naming the day after the examination. The "suggestion" worked a complete cure.

It is not rare to see a case of typical hysterical fit, with rigidity and convulsive movements of the arms and legs. Some weeks ago I witnessed such an attack in an undergraduate, who was in a state of apparent unconsciousness as to his actions, with stiffened body, his heels beating a tattoo on the sofa cushions. Now and then the convulsive movements were violent, and his sympathising friends threw themselves upon him to restrain his movements, while they tried to relieve him with doses of brandy. His temperature was 103° F., and, except for this fever, his symptoms were typical of a

hysterical attack. The patient gradually recovered, but was not himself for some days after this fit. He had consulted me before on one occasion for neuralgic pain in the testicles.

But the interest of such cases is much increased when the undergraduate is in company. If an accident happens to a youth, the shock of perhaps a slight injury may be much prolonged by the extraordinary sympathy of his friends, who, like the patient, may be influenced by panic fear. When reassured, such a patient will go to the opposite extreme and consider that nothing at all is the matter, so that foolish liberty is taken during recovery.

When numbers of young men are together their courage easily runs into foolhardiness and their caution into panic. Before a crowd of spectators lately on the football field a powerful player sustained a fall, and a sudden shock which dislocated his elbow. He screamed like a wounded animal with the pain, and for the time the game was stopped. The hurt man was of course taken to the pavilion, but the most extraordinary scene followed, for the men looking on fainted all over the field, and when I came to the place, man after man with pallid face was being led away by his friends, so that I thought each one in turn was the patient. On my arrival some were lying about in the pavilion, looking quite as much overcome as the victim of the accident.

A curious point to notice was that no ladies fainted on that scene, and this agrees with what is observed in hospital, namely that though many students "go down" at their first operation, it never happens in the case of nurses that they are definitely overcome by the first sight of bloodshed, or turn sick as men do at the sights and sounds of suffering.

It appears that many men will either faint or be thoroughly upset in case of accident, if there is nothing obvious that they can do for the patient at once and actively, or if there is anything that seems good to be done they will overdo their part. Now I have witnessed several times after very serious accidents in a ladies' college that on every occasion the best and wisest arrangements have been made for the comfort of the sufferer, and can testify that in no case did educated and intelligent young ladies suffer from contagious fear. Perhaps like the

nervous forms of stammering and stutter-spasm, it is one of those things from which females are more free than males.

When some years ago there was a scare of small-pox, and many students of both sexes were vaccinated, it was quite curious to note the number of men who fainted under the operation or on witnessing it. If a lady witnessing the performance felt queer she went out and recovered, but a man was rarely got at in time to do more than spread him on the floor for recovery.

In these remarks I entirely leave out the exciting influence of drink. Shock and the reaction when accidents occur may be much emphasised, or perhaps lightened, and it will explain sometimes the odd things done by a man's friends. To give an example. At about one o'clock in the morning I went to see an undergraduate who had cut his hand badly. I found a number of young fellows who had evidently dined; they were all massed together, the wounded hand being held towards me in such a fashion that I was obviously intended to dress the wound without seeing even a portion of the body of my patient. This was all arranged with more gravity than I can describe, and was explained by the desire to conceal the identity of the sufferer and the results of an after-dinner dance which had ended in a fall and a bad cut with broken glass. On another occasion after a "wine," two men who quarrelled were fitted by the more sober of the party with boxing gloves under the idea that they could not so hurt one another; but a struggle on the floor resulted in one of the combatants being carried to bed profoundly unconscious and cyanotic. The panic which ensued in the company was partly made by the fear of discovery by the "dons" of the college.

But it is not always the ordinary orgy that one has to deal with. One night I was called out to visit college rooms in which a strange thing had happened. Three men had obtained from the East a quantity of haschish, a form of Indian hemp, of which powerful drug they had arranged together to partake each his allotted portion; meanwhile note-takers and witnesses of the performance were arranged to record the doings and sayings of those under the influence of the excitement of the poison. When I arrived two out of the three were thoroughly and

dangerously under the influence, talking incessantly, laughing in wild delirium, stamping in a sort of a dance, while now and then they broke off to vomit from the effects of the mustard emetics which the doctor who called me to his aid had already administered. The stamping of the legs in one case was not at all interrupted during the vomiting. They all recovered. The one who was at first little affected afterwards gave us the most anxiety. He was a coloured man, had faintness and a small uncountable pulse, and was a good deal under the influence of fear from what he had already seen of the effects of the haschish and the means used to restore the other patients.

Apart from actual injury it appears that men are influenced by circumstances which women do not feel so much. The effects of shock after accident apparently slight, may lead in favouring conditions to attacks of hysteria, and one must be on the look out for hysteria in likely subjects in the same sort of way as we look for delirium tremens as the sequence and serious complication of an injury.

Those who are interested in such cases as the following should read a paper on *Traumatic Hysteria* by Dr. Thorburn, which was preceded by a suggestive article by Dr. Dreschfeld, both writing in the *Medical Chronicle*; had I read these sooner my notes of cases would have been better and more fully done. For bibliography see *Medical Chronicle*, Vol. IX. This instance of a remarkable fit after a fall exemplifies a form of hysterical attack following a shake, assisted by sympathy and perhaps recollection of former injury. I would especially note the influence of "suggestion" in stiffening the right lower limb and perhaps also the right arm. I cannot believe that there was any definite lesion.

Case V.—In November 1886 an urgent summons called me to see a tall strong undergraduate who had had a fall in jumping over a low boundary rope at some athletic sports, when encumbered by his ulster, cigarette, and walking stick. He picked himself up, made a remark, and then went off into an apparently unconscious state. I found my patient stretched full length on the large table in the pavilion, a medical man supporting his right elbow, and twenty or more sympathising and excited undergraduate friends crowded around him.

He lay on his back with his eyes closed but as if by effort, apparently unconscious, the face flushed, pupils active and equal. Examination of the right arm made him wince, and utter a few short convulsive sobs, but he did not speak or make any sign in answer to questions.

When his ulster and other garments were stripped off, no evidence of injury or abrasion was found. The right arm was rigidly fixed in the extended position, the little finger firmly flexed into the palm; the right lower limb was at first not rigid, but when I had asked if the leg was also stiff, and if he had walked after the fall, it immediately became perfectly rigid. After about twenty minutes he answered a question by a grunt. An hour later he was induced to take a cup of coffee. Six hours afterwards he seemed still better and occasionally replied to questions.

He passed water eight hours after the accident (ten or eleven hours after luncheon). Next day there was rigidity in the right upper limb; it was easy by encouragement and control to flex it, but the more natural position of flexion could not be maintained. He gradually recovered and in a few days was quite well. Careful examination failed to detect any injury—not even a bruise or swelling of the skin.

There was a history of a severe fall from a horse some years ago, which had been followed by headaches, for which he was treated during a month after the accident by Dr. Hughlings Jackson. He was then kept quiet in a darkened room.

In August 1884, my friend Mr. Deighton, at my request, brought the following case with mine before the Cambridge Medical Society. In November of 1883 he was summoned in urgent haste to see an undergraduate. He found him surrounded by his friends, who said they had been playing the “willing game,” and that he had been blindfolded and willed; soon afterwards he became tottery on his legs and went off into a state of convulsions. When seen he was tossing about on a sofa, with face slightly flushed, the movements of the arms and legs being most irregular, almost equally exaggerated on both sides. The muscles of face and neck were least affected, but he spoke in a jerky way, and on putting out his tongue it was protruded and

withdrawn suddenly. He was quite conscious, clear and collected, and said that he tried to prevent himself tossing about, but could not help it. The pupils acted to light and were natural in size. He was ordered a bromide draught and told to go to bed.

The next morning he was quite well again. He said he had spent a bad night, tossing about until 5 A.M. before he got to sleep, but there was now only an occasional twitching in the legs. He was of a nervous and excitable disposition, but never had fits or rheumatism or chorea. The heart sounds were normal. He was liable to excessive frequency of micturition on any excitement.

“Mr. Deighton said that the facts were against this being an attack of hysteria; the patient was a man, the movements of the body were irregular and continuous, and the patient's mind was throughout calm and collected, trying to control himself. On the other hand the attack had all the appearance of chorea, the short duration of the seizure being the only difficulty to that view.”

“He thought that if chorea was regarded as a functional affection in which a mere exaggeration of those muscular movements which are constantly taking place in the body occurred, and if it were supposed that a shock by removing the controlling power of the higher centres allowed the lower centres to have full play, then this case was in the same way capable of explanation.”

“Mr. Wherry said that the symptoms in his case, though not so definite as in Mr. Deighton's, were nevertheless sufficient to alarm the patient's friends. He was sent for one evening to see an undergraduate who had become suddenly ill during the “willing game.” It appeared that his friends had blindfolded him in the usual manner and were willing him to do some simple action, when all on a sudden he became weak in the knees and had to be helped to a seat. The handkerchief was removed at once, but the patient did not seem at all himself. He found him leaning against the mantelshelf, looking fixedly downwards in a dogged and morose attitude; he answered questions in monosyllables in a hesitating way, not stammering, but with a jerk and without expression. Usually, his friends

said, his manners were natural and polite. The pupils were dilated, with no reaction to light, and his memory was a blank as to the details of the game. He was sent to bed, and when seen the next morning he was better: his pupils were normal and active to light, but his manner was still odd and his speech remarkable. When advised to leave Cambridge for a few days' change, he refused rudely, but was afterwards persuaded by his friends, and returned quite well."

"Mr. Wherry remarked upon the strange state induced by this willing game: the dogged and morose manner, slow replies, no action of the pupils to light, rapid recovery, and no recollection of the period during which he was being willed; altogether a condition which he was informed corresponded with the hypnotic or mesmeric state, and one of which as medical men we should like to know more."¹

The next case I always felt hopeful about because of its hysterical aspect, in spite of the very severe and alarming symptoms. The chief interest of the attack, to my mind, is in the hysterical tendency of the symptoms. It was necessary to treat the patient in small lodgings, and his parents and others of his family came to Cambridge, so that it was quite impossible to avoid showing grave anxiety to the lad himself. The dysphagia was not unlike what is found in hysteria, but it is easier in such cases to give an opinion than to say definitely and precisely why this opinion is given. It did not differ from an ordinary attack of tetanus, except in the hysterical element. Several worse cases have recovered under my care, one of them after tracheotomy, but the case related is the only one in my experience in which, with such alarming signs, a more cheerful aspect was put upon them by evidences of hysteria.

Case VI.—Tetanus with hysterical symptoms: recovery—This was the case of an undergraduate aged twenty, a healthy muscular man, who consulted me for stiffness in the jaws. There was pain on the left side of the face, and stiffness and pain dependent upon contraction of the masticatory muscles. He could open his mouth but not widely. It seemed to be a case of trismus, and possibly due to crowded teeth with wisdom teeth coming through.

¹ *Proceedings of the Cambridge Medical Society*, No. 7, 1884.

No evidence of wisdom teeth was discovered on examination by Dr. Cunningham, but one carious tooth which had been filled was found among an otherwise sound set. This tooth seems to have been damaged by biting on a piece of bone concealed in some tinned meat. This accident happened about two months previously, and the tooth, an upper molar, had been filled by a dentist. The symptoms of trismus were not relieved by attention to the tooth, and three days later, when seen again, there was marked spasm of the facial muscles: also it was elicited that although he could always swallow liquids well, during the past two days he could not swallow any solid food at all.

Besides the well-known tetanic grin produced by facial spasm, there was also contraction at intervals of the sterno-mastoids, especially of the left side.

Recognising the gravity of the case, I decided to telegraph for his father, a medical man, who came up at once from Devonshire; on the following day there was no relief of the symptoms, but on the contrary some hardness in the abdominal regions, from spasm of the muscles of the belly, pointed to extension of the malady.

Next day, which was perhaps the sixth day of the attack, after consultation it was decided to extract the tooth, and also the corresponding lower molar. Chloroform was given and the teeth successfully drawn. The disorder seemed to progress uninfluenced by the operation, the muscles of the chest, abdomen, and back were involved, and violent fits occurred in which all the muscles of the trunk and limbs seemed to be contracted with the severe pains which accompany cramp.

During some days the patient was in great danger, but there were always the following hopeful signs, namely—the slow onset of the tetanus, the ability to swallow fluid nourishment, the absence of high temperature, and the absence of sweatings, except during the attacks, so that there was never any great exhaustion. Also that his attacks were often brought on by sympathy, or made worse by talking of his illness, and he had an attack of what appeared to me to be certainly *hysterical* retention of urine—in which a catheter was not used. The patient lay on his face and passed water into a sponge bath.

The disease ran its course in about two weeks; during the

third week spasmodic cramps occurred in the legs and thighs. The tetanic contractions followed therefore the same course as is witnessed in *rigor mortis*, beginning in the jaws, then the neck, then the belly and trunk, the arms, and lastly the legs. With regard to the contraction of masticatory and facial muscles, it was always to be observed, even during sleep, though aggravated at times. On two occasions he bit his tongue badly. The *general* spasms were often made worse by sympathy, attempts to talk, efforts to make water, or to relieve the bowels. The digits were not affected.

The treatment pursued may be summed up as follows: Extraction of the teeth to remove a possible source of nerve-irritation or of overcrowding, with rest and quiet in bed. Hydrate of chloral internally, to relieve the attacks of spasm, and extract of belladonna applied hot externally to the jaws and cheeks. Always the most important part of the treatment of these cases is the feeding, and milk, beef-tea, raw beef juice, and cream, beat-up eggs and the like, were administered constantly at suitable intervals. Tetanus must be looked upon as an exhausting malady which runs its course, and if the patient can be kept alive during ten or twelve days it is rarely fatal.

In all cases of trismus dependent upon the eruption of wisdom teeth, the patient is able to swallow food if soft and convenient, so that the first indication of the more alarming malady was the inability to swallow solid food; not even gruel could be taken unless it was as thin as milk. The tetanic smile which distorted the face was nearly contemporary with the dysphagia, and then followed the violent attacks with opisthotonos which are so painful and so dangerous.

The only case in my experience which resembles this is that of a young man who cracked and ate a hundred walnuts for a wager. No definite lesion in his mouth was discovered, when some time after winning his wager he developed tetanus, which ran much the same course as in the above related case and terminated in recovery.

The following case, which I have called hysterical dysphagia, is interesting in connexion with cases of vomiting due to spasm of the œsophagus—and it seemed that this patient, as in a case

published by Dr. Bristowe,¹ became incapable of swallowing from some impediment at the bottom of the pharynx. The act of deglutition was performed without difficulty, but a rapid violent ejection took place afterwards. The relief was very speedy after the passage of a tube, and as the patient was rather starved it seemed better to put a meal into the stomach. There was no vomiting in this case except as described after attempts to swallow. The syphon tube for feeding was always kept in evidence at the foot of the patient's bed, and I thought it was useful in reminding him of what the continuance of dysphagia might involve.

Case VII.—Hysterical dysphagia.—A baker, aged 20, was admitted to hospital complaining of being unable to swallow. When attempts are made to swallow fluid it is retained for a short time and regurgitates through his nose and mouth with spluttering and coughing; he then retches for a considerable time. Knee-reflex good, no visceral or other disorder. Three days previously he was taken with dizziness in his head, which he thought was due to watching a sausage machine at work, and he had to go home to bed. Trying to get up next day he was still very giddy; he had right frontal headache and perspired freely.

On the following day he ate some bread and butter, but was too giddy and tired and hot to do anything at his work. In the middle of this day he was unable to swallow even water, which seemed to go as far as his thyroid and then returned through his nose. He slept well at night, the headache and dizziness improved, but he could not swallow anything. He was perfectly sensible and intelligent. Four years before this attack he had been laid up a week with rheumatism in both legs. They were so painful that he could not bear anyone to touch them. He was in bed a week, after which they became perfectly well. Four months ago he had a slight sore throat, but was at work as usual. He was fed twice with a stomach-tube, which gave him some inconvenience. The meals were retained, he was soon able to swallow, and was discharged perfectly well.

Cases of hysterical amblyopia are not infrequently observed; squints and ptosis are also not rarely seen. A tight closing of one

¹ Bristowe's *Medicine*, p. 1146; see also his *Diseases of the Nervous System*.

eye to relieve photophobia would be almost certainly a case of hysterical malady, as no ordinary intolerance of light would be successfully relieved by any method which did not shade light from both eyes. Patients who carry a little flap over one eye, in a futile attempt to relieve their photophobia, will always refuse to face a strong light with the other eye unshaded if there be a real intolerance of light. It is characteristic of hysteria to be relieved by methods which ought not to give relief, and which would not do so in ordinary cases: as when a patient who professes blindness reads test letters well with plain glasses in large frames. These points are illustrated by the following case.

Case VIII.—Hysterical photophobia.—A married woman, anæmic from lactation, and subsequent miscarriages or menorrhagia, is twenty-eight years of age, and has had eight living children and lost one. Nursed each baby twelve to eighteen months, complained a week ago of pain in the left eye and orbit and great intolerance of light. When seen by me there was nothing abnormal to be found except the anæmia, but the patient kept the left eyelids always tightly closed and would not open them opposite a window, though she faced a strong light boldly enough with the right eye open. The fundus oculi was healthy, and medical examination revealed nothing amiss except in connexion with anæmia. She recovered in one week, chiefly through my confidently affirming that she would be quite well in a day or two. There was nothing noteworthy in her previous history; she had had one or two giddy or fainting fits.

The following very rare condition was before admission mistaken for hysteria.

Case IX.—Retention of urine caused by retained menses and imperforate hymen.—A weakly-looking girl, of sallow complexion, was admitted into Addenbrooke's Hospital suffering from retention of urine. She had had great difficulty in passing water for the last twenty-one weeks, and had frequently required the use of a catheter. There was no evidence of hysteria on admission. She was seventeen years old and had never menstruated. An imperforate hymen was found protruding between the labia minora: this was incised and a

large quantity of tarry fluid escaped, and continued discharging during a week. The pain and difficulty in passing water disappeared. After ten days the thick tough membrane, found to be the hymen, was freely divided; the vaginal passage and os uteri were normal. The patient made a good recovery.

Case X.—Inflammation of joints following injury to spine.—

The case was briefly as follows. A healthy labouring man fell eight feet on to his side, walked home a mile and a quarter, lay helpless in bed for a week, was carried to Addenbrooke's Hospital, developed painful inflamed joints with effusion and œdema, had a remarkable unilateral sweating, was treated with cupping, blisters, opium, and purgatives, and made a good recovery.

The following are the full records of the case:—A labourer, aged fifty-four, was working on a stack in the dark of early morning on December 24, 1885, when he fell off, dropping about eight feet on to his left side. He walked home with pain and difficulty a distance of over a mile, lay in bed drowsy, without appetite, very helpless, and only just able slowly to move his limbs. After a week in this condition, he was carried to the hospital on December 31. When admitted he was drowsy and stupid, and answered questions in a dull manner when roused. Skin-sensations seemed perfect everywhere. The movements of the limbs were very slow, difficult, and painful. Turning over in bed was a struggling tedious process. The grip of the hands was very feeble, especially that of the right; no rigors, no sweats, no bladder symptoms, the bowels confined. He had always had good health, and worked daily up to the date of his accident. On January 1, 1886, some swelling of the left wrist, fingers, and both ankle-joints appeared, with pain on movement, and tenderness, relieved by an opiate. Heart sounds normal, evening temperature 101·6°. January 2: Marked redness and swelling of left wrist-joint, with œdema, and of joints of first and second fingers; an angry red appearance of the back of the wrist, which region was extremely tender and looked as if it would suppurate; slight swelling also of right wrist and finger joints. Beads of sweat on left forehead, and a few herpetic vesicles are seen along the course of the left supraorbital nerve. Tears and excessive secretion in con-

junctival sacs of the left eye ; pulse 80 ; considerable œdema of both ankles ; patient is drowsy, and asleep except when in pain. No general sweating. Urine acid. Bowels acted after calomel. Evening temperature 101·4°. January 3 : Redness and swelling in left wrist continues, as also in both ankles, drowsiness and stupor ; muco-pus in conjunctival sacs of left eyelids, not in the right. The knees were usually kept drawn up in the bed, and were put down with an effort. Morning temperature 100·2° ; evening 101·8°. By Dr. Latham's suggestion he was cupped at the root of the neck behind in two places ; about two ounces of blood were drawn ; no relief that night. January 4 : He seemed better and in less pain. Morning temperature 100·2°, evening 101·6°. January 5 : Less pain and tension in the joints. His manner still stupid and dull. Morning temperature 99·2°. He was cupped again in four spots, and four or more ounces of blood were drawn ; he was ordered gr. v. of calomel and gr. i. of opium. January 6 : Bowels were open three times after the calomel. He is better. Wrists and ankles less swollen. Morning temperature 100°, evening 101° ; Mistura Senna Co. and an opiate. January 7 : Wrists and ankles better ; complains of pain in right knee with some tenderness, but there is no swelling. Blister 1½ in. by 1½ in. in four spots along the spine. Opiates at night. Blisters kept open by savin ointment. Calomel and castor oil in the evening. Temperature 100·8°. January 9 : The right foot and ankles more painful and swollen ; the other joints are better. Morning temperature 101·2° ; ordered a blister 4 in. by 3 in. over the lower dorsal vertebræ ; evening temperature 101·8°. January 10 : Feels better and has had a good night, has no longer the dull stupid manner, his mind is clear. Was ordered Tincturæ Opii ℥ x. three times a day. The blister kept open by savin ointment.

From this time continuous improvement took place. The evening and morning temperature fell daily until January 19, when the evening temperature reached the normal point, and the blistered surface was allowed to heal. There was some œdema about the affected joints after the redness and pain had passed away, but this entirely disappeared by January 23. There was still at this date a little tenderness and thickening

about the left wrist. The unilateral sweating about the face was noticed from time to time. February 2: The patient sitting up in bed, much improved, and has lost all pain except now and then in the left wrist. There is some thickening and stiffness about the joints which were most affected, and his grip is still weak, though stronger than before.

Was this a case of injury to the spinal nervous system? There is nothing against it in the fact that the man walked so far to his home after the injury. It has been especially noted by Le Gros Clarke that there may be very little shock after severe spinal injuries, which differ markedly in this respect from other visceral lesions. There was no very obvious difference between the appearance of the joints and that which manifests itself in rheumatism or rheumatic gout. The small joints, and wrists and ankles, were most affected, and the left wrist acutely; but the flexion of the knees and hip joints, which was specially noted, pointed to inflammation. The first sign of inflammation of a large joint may be the constant assumption of the flexed position. There was no history of former rheumatism. With regard to the sweat-symptom, which pointed to a vaso-motor disturbance or paresis, both general and local sweating have been noticed after general nervous shock, as after railway collisions, and one leg has been observed to sweat and not the other. Page tells the story of an alarmed woman who thought her child was about to be knocked down at a railway station, and who was herself knocked down on the platform. Polyuria followed during some weeks, except for twenty-four hours, during which time it was replaced by an enormous flow of milk from the breasts; the disturbance seemed to move from one part to another. My patient had sweating of the left temple, but no general sweating, though the skin was fairly moist. This phenomenon was observed several times by me and confirmed by others, sources of error such as draughts of air being excluded by the use of screens.

The next cases which I have to record are two instances of recovery after fracture of the spine. These cases are not so usual as might be expected from the comparative frequency of recovery after most advanced disease. A man is not expected

to recover from a broken neck, and I have therefore taken some pains to give here a photograph of a living patient, with an account of the *post-mortem* appearances in the spinal column. With modern methods of immobilisation even more successful results may appear in the future, and surer indications may be obtained for trephining and operative treatment, inasmuch as hæmatomyelia and such lesions are now capable of being recognised. Cystitis is now better looked after, and I once witnessed an extraordinary improvement after a perineal section, in a man apparently dying from cystitis due to fractured cervical spine.

In one of the two cases there was fracture of the upper lumbar vertebræ with paralysis of the legs, and in the other there was fracture of the cervical vertebræ, with paralysis of both arms. Death occurring twelve years later from other causes, a *post-mortem* examination was obtained. The condition of the spinal column is described below.

Case XI.—Charles C——, aged 60, on October 29, 1873, fell fifty-seven feet from a scaffold; at twenty-eight feet a plank checked his fall, and lower down he alighted on the ridge-roof of an office. He lay nineteen weeks in Addenbrooke's Hospital, with paraplegia and sores on his back. A catheter was used for two years, he recovered power in his bladder by degrees, and from his invalid-chair began to walk with crutches, and could go 100 yards pretty well. He has now, thirteen years after the accident, enjoyed fair health, but his legs lately have been swollen and ulcerated. His hands are suffering from what may be "crutch" palsy. Urine is retained ordinarily, but any beer or tea beyond a very moderate quantity is followed by incontinence.

Case XII.—Peter H—— in 1874 was standing on the top of a load of tares, hauling at a rope which he thought was fastened down below, when he fell backwards on to the ground. He was in the hospital about a year, and had paralysis of the bladder during seven or eight days only; no paralysis of the lower limbs. There were large sloughs on the scapula, but no bed-sores elsewhere. In carrying him to bed crepitus was felt. His breathing was entirely diaphragmatic. When he had been in bed about a year he began to gain flesh and strength, and sat up in a chair, and later on walked about, carrying his head erect and his neck

stiff. Afterwards he could walk vigorously and well, but his arms remained paralysed and fixed in the bent position. Some slight power of extension was regained in the fingers of the left hand especially, and the upper limbs could be moved as a whole a few inches away from the body. There was very little thoracic movement anywhere, as indicated by tape-measurements round the chest. After twelve years of excellent health he died, thin and anæmic, and with a large spleen.

The specimen obtained at the *post-mortem* examination showed the bodies of the 5th, 6th, and 7th cervical vertebræ to be firmly ankylosed; no remains of intervertebral substance between the 5th and 6th, and very little between the 6th and 7th. The coalesced bodies of the 5th and 6th, and the bodies above, bend forward so as to make an angle with the bodies of the 7th cervical and upper dorsal. The cervical spine has a marked curve with its concavity forward. The canal shows a corresponding bend; the angle and the narrowest part of the canal is between the lamina of the 5th and the posterior upper edge of the 6th body, an illustration of the usual mode by which the cord is crushed. The laminae of the 5th, 6th and 7th, are firmly joined. The articular processes are also firmly united by bone. There is separation between the articulations of the 4th and 5th, and also, but less, between the 3rd and 4th. The transverse processes of the 5th, 6th and 7th, are closer than natural but not touching; the vertebral artery canal is patent. The intervertebral canals for 6th spinal nerves are small and irregular in shape, and their cords must have been nipped at their exit from the vertebral canal. The dry specimen showed a general atrophy of the parts damaged, especially the bodies of the vertebræ, and a singular absence of callus.

The brachial cords then were pressed upon or damaged at the intervertebral foramina, the spinal cord itself being perhaps very little injured. This patient had the *main en griffe* figured and described by Duchenne: it was explained by the fact that the extensors of the fingers had regained some power, while the interossei muscles remained wasted and quite paralysed.

A wet specimen was also preserved, which contained the spinal cord and nerves.

When the patient about to be described first came to me with diplopia, I thought he had spinal disorder, because of his small pupils, his unusual dizziness, and want of balance; these were much more than any error of projection or diplopia would account for. It was interesting to find after five years the ataxy and numbness of the legs more definitely suggesting a lesion in the spinal cord. It would have been very easy in the first attack to have thought the symptoms not so alarming, but due to an ordinary paralysis of the superior oblique muscle in the left eye.

Case XIII.—Syphilitic affection of the spinal cord.—A hard-working professional man, aged thirty-five years, came to my house on January 23, 1886. It was late in the evening, and he kept his cab waiting at the door. He staggered into my room tending to turn to the left, and keeping the left eye always tightly closed. He said, "I am not drunk, though I seem as if I am." He saw double images, especially on the left side, and below the horizontal—the diplopia was homonymous, no squint could be detected. The pupils were very small, and did not react to light. He could not turn round with his eyes shut, or place his feet together without falling. Knee-reflexes were exaggerated on both sides. No headache, sickness, or pain anywhere. He first noticed his disorder three days before in trying to waltz, when he had to stop from staggering and giddiness; as he was costive he took opening medicine.

Four years previously he contracted syphilis and had only a slight treatment. I ordered his temples to be blistered, to keep lying down, to use an unstimulating diet, and to take 12 grains of iodide of potassium every four hours. After eight days he entirely recovered and returned to his business. This patient had no reminders until five years later, in March 1891, when he had an attack of unaccountable vomiting, which was so absolutely sudden and without warning that, while sitting at his desk writing, as he said, "it went all over my papers."

On April 20 he visited me on recovery from an attack which he described as a cold and loss of voice; he had numbness of the feet and legs, with an uncomfortable grip or girdle sensation about the groins and pubes. The knee-reflex was exaggerated on both sides, he had a distinct ataxic gait, and got

up and down from his chair like an old man. He could not stand with his eyes shut; no pains anywhere. Skin of feet not anæsthetic or analgesic. Iodide of potassium was again given. Two days later the ataxy was so marked that he could not walk in the streets, and in washing himself he had fallen down into the basin from inability to balance himself with closed eyes. He also had a bad fall from moving in the dark downstairs to the water-closet. Numbness and girdle sensation very marked, and some considerable hesitancy in micturition. The pupils measured each $2\frac{1}{2}$ mm., and there was no reaction to light, doubtful reaction in accommodation.

He very much improved in three weeks, the iodide of potassium being given to 60 grains daily; he does his work as usual, can stand quite well with his eyes shut, and walks without the ataxic gait being easily noticed.

This patient ultimately recovered under the treatment indicated, with the addition of small doses of mercuric perchloride. He thus formed no exception to the rule that before middle life syphilitic affections of the nerves are more hopeful in prospect of recovery, and much more likely to yield to vigorous treatment, than afterwards.

The following is a case of paralysis apparently connected with the irritation of dentition. There is no evidence of abiding cerebral disease. The child is otherwise perfectly well in body and mind. I report this because all cases of paralysis of the fifth nerve are interesting and are rarely met with in children.

Case XIV.—Paralysis of the left, fifth, and facial nerves in a child.—The patient is a boy three years old, the left eye is lost and somewhat atrophied. The cornea everywhere opaque, and may be touched without any reflex movement of lid or eyeball. The muscles of the eyeball act perfectly. There is loss of sensation on the left side of the face and of the nose, supra-orbital region, and inside of the mouth. The teeth on left upper jaw are only represented by a canine and one or two decayed stumps, there are no teeth in left side of the lower jaw. Food collects in the left cheek, and it is difficult to observe the action of masticatory muscles on that side. The teeth on right side are very good, the incisors are stunted though sound. The

teeth were cut at about seventeen months, but on the left side they rapidly decayed.

No evident difference in size of the two sides of face or head. There is paralysis of the left orbicularis palpebrarum and facial muscles. The mucous membrane of the left nasal cavity discharges or is covered by scab, and the left auditory meatus is usually blocked by secretions. The tympanic membrane is dull. There is a slight central opacity of the right cornea. Ophthalmoscopic examination reveals no disease. A slight abrasion of the left eyebrow was three months in healing. The perspiration produced by a Turkish bath heated to 150° F. was not different on the two sides of the face or forehead.

The mother and father agree in stating that the child was quite well, and its eyes bright and clear, until seven months old; it then suffered from "a cold in the eye" and did not mind the towel being rubbed across the eyeball. There is no history of fits or syphilis. The mother volunteered that the left arm and leg were weak for a short time at the onset of the eye-affection, and it often fell down on that side.

Disease of the petrous bone would best explain this child's condition, the mischief involving the ganglion at the apex of petrous portion. Dr. Latham, who saw the case at the Cambridge Medical Society, considered that the disease must be localised at a spot in the course of the fifth nerve and anterior to the Gasserian ganglion. If the fifth nerve be divided anterior to the Gasserian ganglion, inflammation of the conjunctiva, ulceration of the cornea, discharge of the humours of the eye, with loss of smell on the paralysed side, take place; but not if the nerve be divided at a point posterior to the ganglion, though that operation is followed by loss of sensibility on one side of the face, of the conjunctiva, and anterior portion of the tongue. On the other hand, Dr. James Ross, of Manchester, who kindly wrote me an account of other cases at the time, had had good evidence and *post-mortem* demonstration that neuro-paralytic ophthalmia may be present when a lesion interrupts or irritates the fibres of the nerve on their passage through the pons. Simultaneous paralysis of the seventh and fifth nerves is usually situated in the pons, or in the middle peduncle of the cerebellum adjoining the pons. Dr. Ross

mentions three cases, in one of which the diagnosis was verified *post-mortem*, the second case was still under treatment, and the third being syphilitic was recovering.

Seven years later, when this boy was ten years old, he was brought to me with the lost left eye staphylomatous and bulging on the cheek. It was accordingly enucleated, and three years later the socket was still unhealed, and the following note of his condition was taken.

The boy, now aged thirteen, is healthy and intelligent. The left eye, excised three years ago, shows the wound still unhealed,¹ and all the lid edges and eyelashes have ulcerated away; a dirty pus fills the open socket.

There is not any evidence of syphilitic taint in the teeth or physiognomy. There is a slight nebula on right cornea. Facial paralysis is evident on the left side. The face and forehead are smooth and immobile. The left side of the upper lip has the mucous membrane sore and scabbed, and the lip is swollen on this side so that it stands away from the teeth. There is no sensation on the left forehead up to the roots of the hair, no sensation on left cheek as far outwards as the malar prominence and downwards to the lower jaw. The junction of sensitive with insensitive skin, in the mid-line along the forehead, nose, and lip, is fairly well defined. The mucous membrane of the upper jaw also appears to be insensitive. The left nostril, which was always full of unhealthy secretion before the eye was removed, is now merely rather smaller, and the ala is drawn up exposing more septum on that side. In the left ear there is perforation of the membrana tympani, which is covered with unhealthy secretion, but there is never any discharge from the ear. On the left side he is quite deaf. He hears the tuning-fork only on mastoid or skull. The right ear is normal, and although the patient cannot whistle he sings well and with good ear for music. There are some enlarged cervical glands on the left side, but not on the right.

With regard to the teeth, in which the baby was so deficient on the left side, they are rather more decayed in this left jaw (of course the permanent set), and the second bicuspid and second

¹ The mother tells me that this is sometimes quite dry, and then at other times there is excess of secretion, which runs over the cheek.

molar on left side have not appeared—otherwise there is nothing noteworthy; the teeth are well formed, but a good deal decayed on both sides of the mouth.

It is difficult to explain the ulceration of eyelids which has taken place in this case after excision of the globe three years ago, unless the old “trophic” view is to be held with regard to the lids as well as to the eyeball, and that both are influenced by the Gasserian ganglion. The absence of protective sensitiveness will more easily explain the loss of the globe than that of the lid margins.

Cases XV—XVIII.—Paralysis of the infraorbital nerve.

(1) A young man received a violent blow at football from another player's elbow on the left malar prominence. Immediately after the injury the upper lip and cheek of that side became numb and so remained. The following day, when first seen, there was a depression of the malar prominence, and on passing the finger along the lower ridge of the orbit it at once detected a fracture, running down probably to the infraorbital foramen. There was soon sub-conjunctival ecchymosis, and all sensation was absent in the parts supplied by the infraorbital branch of the fifth nerve; the gums and teeth were said to feel dead.

The fracture was firmly impacted, and the patient did not wish any attempt made to remedy the deformity.

(2) A very similar accident occurred in another case at football, with the same sinking of the malar prominence, and a crag of bone could be felt when the finger passed along the lower edge of the orbit from the malar to the nasal process.

There was numbness of the cheek, but this passed away in time. The zygomatic arch was also thought to be broken; the fracture was firmly fixed and the deformity was permanent.

In these two cases there was not more pain or bruising than is usual in a bad black eye, and no general disturbance or shock.

(3) In a third case there was a remarkable circumorbital ring of ecchymosis, and another ring of ecchymosis round the ear, after a blow upon the cheek in a middle-aged man. Head symptoms were severe—stupidity alternating with delirium, retention of urine, &c.

Recovery took place after a long period. There was a probability of fracture of the anterior fossa of the skull.

(4) In a fourth case, that of a boy aged seven years, a smart blow on the malar prominence was followed by headache and orbital cellulitis, which led to deep pus-formation, and extreme protrusion of the eyeball. Incision and drainage restored the appearance of the eye, but only guiding sight was recovered in the eye which had been protruded, the vision having been impaired during the recovery from optic neuritis.

The malar bone, which is so rarely fractured and guards so well the orbital contents, may yet have its bony connexions and buttresses broken, and important structures in the immediate neighbourhood do not always escape. The differences in the strength of the bones, especially of the upper jaw, at various periods of life, is important in determining the result of blows upon the cheek.

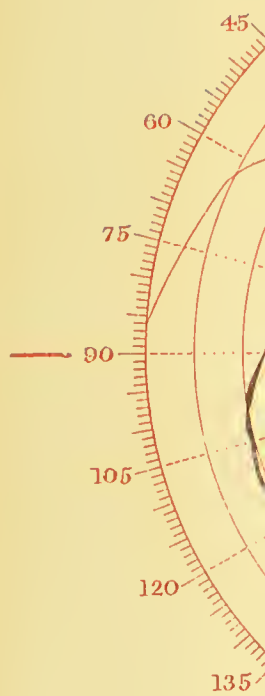
Case XIX.—Injury of the left facial nerve. A boy of seven years of age, while playing in a field where swedes were being carted, was struck in the left auditory meatus by a four-tined fork. A deal of bleeding from the ear followed, and the boy was "sick every ten minutes" all the next day.

He was brought to the hospital on account of a muco-purulent discharge from the left eye. Complete facial palsy of the left side was present, with the usual evidence of paralysis of the muscles of expression, viz. inability to close the eye, and asymmetry aggravated by smiling and frowning. No paralysis of tongue, palate, or uvula. Sensation and taste on the tongue were not affected, nor was the secretion from the mouth. The hearing was not quite so good on the left side as on the right. There was considerable atrophy of the facial muscles on the left side. Electrical reaction: The facial muscles on the right side reacted readily to a weak interrupted current, but on the left side no reaction was produced even by a painfully strong current. With regard to the constant current, the muscles reacted on the right side only to a current of ten cells, whereas those on the left responded to a current of four cells, and this most markedly when the anode was used as the stimulating pole, and on closing the current. There was a scar plainly visible on the fore part of

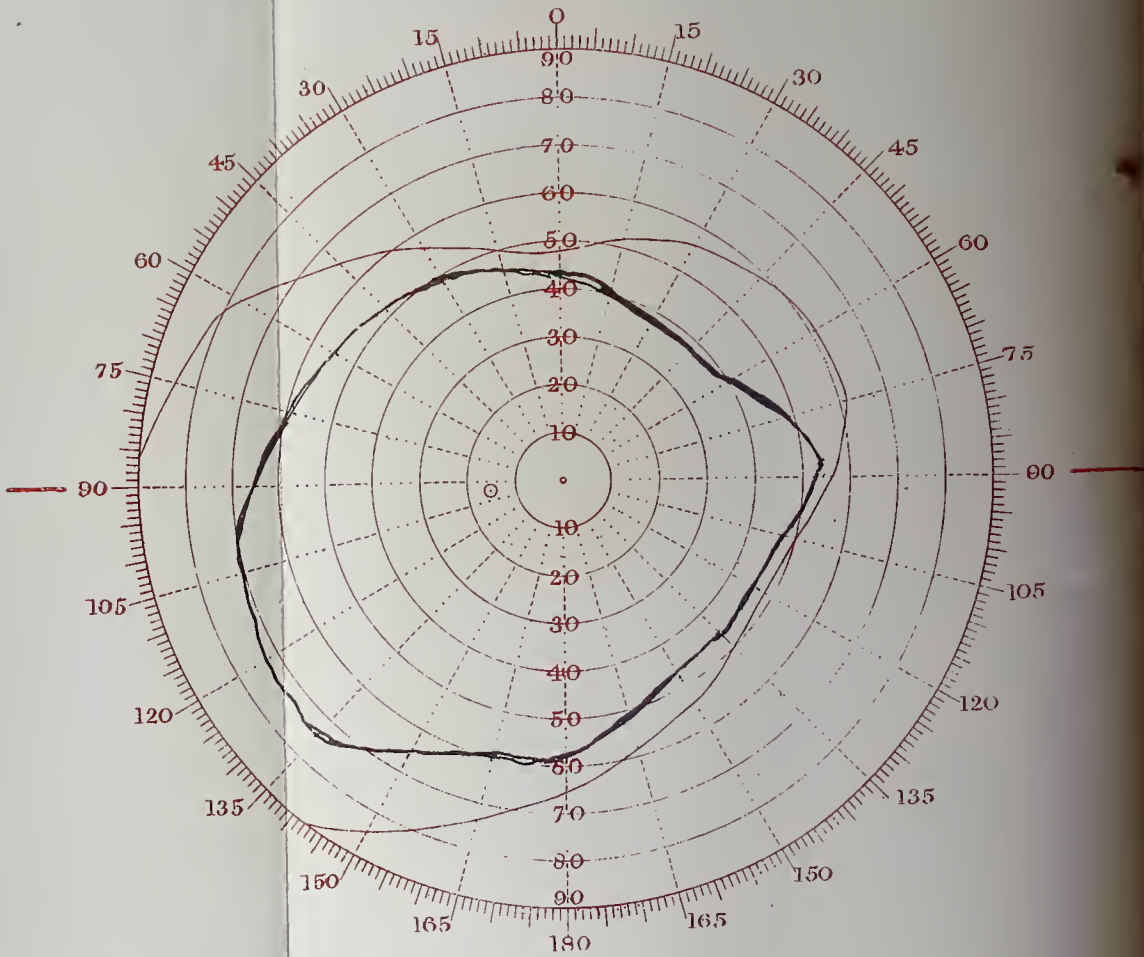
the roof of the meatus auditorius, just at the entrance. The tympanic membrane was perfect.

Case XX.—Paralysis of two of the leg muscles: cured by electricity. An athletic undergraduate had complete paralysis of the extensor proprius pollicis and extensor longus digitorum of the right foot. In walking the foot was swung forward and flapped on the ground at each step. There was some numbness in the toes. No cause could be ascertained. Liniments and massage did no good. There was a fair amount of electric contractility. Fifteen applications of a powerful electro-magnetic machine (Weiss) completely cured the patient.

I have seen a similar paralysis and talipes produced by an exostosis on the head of the fibula, pressing on the peroneal nerve.



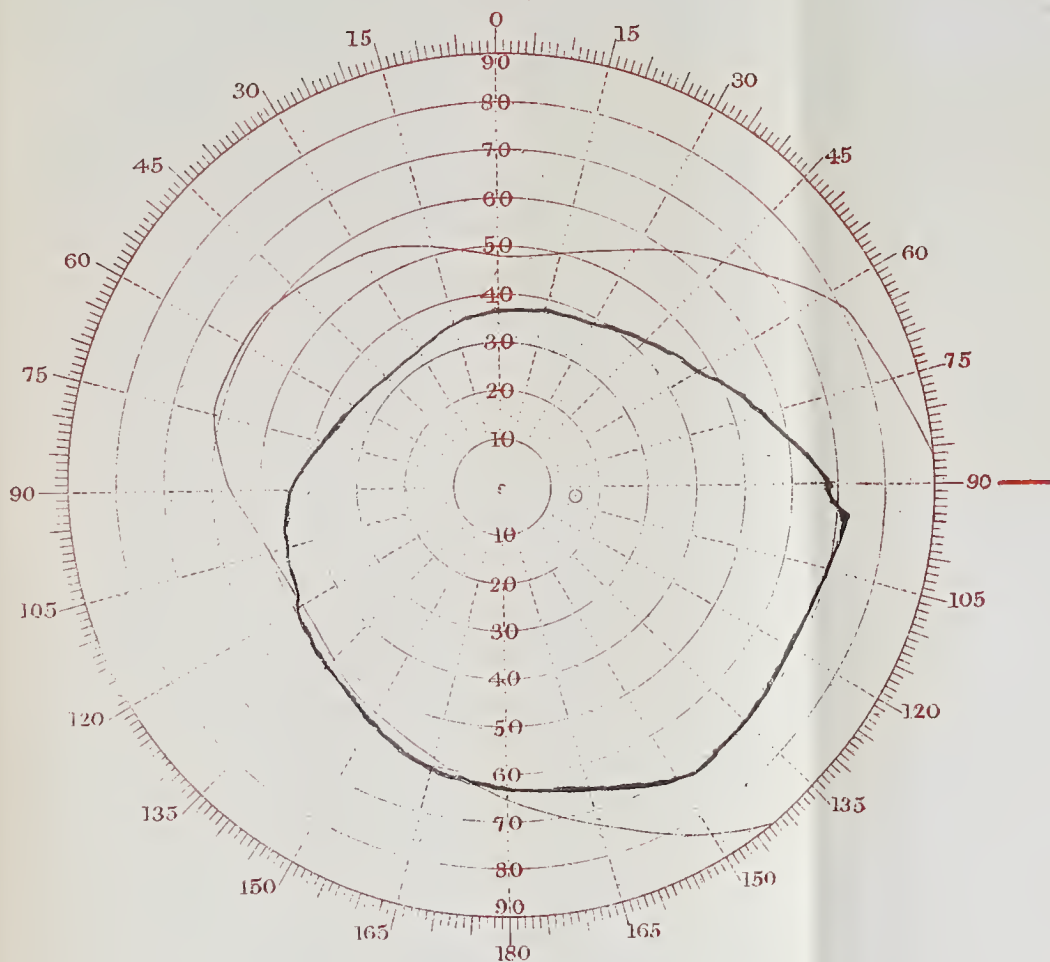
LEFT.



PERIMETER—TRACING OF.

Case III

RIGHT.



PERIMETER—TRACING OF.

Case III



